DOCUMENT RESUME

ED 072 262 VT 018 746

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TITLE	Curriculum Focus: Occupations and the World of Work. Information Series 5.
INSTITUTION	West Virginia Univ., Morgantown. Appalachian Center.
PUB DATE	Jan 69
NOTE	15p.; Series 69 No. 6-4
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Curriculum Design; *Educational Change; *Educational Objectives; Individual Development; *Industrial Arts; Occupations; *Technological Advancement; Technology; Vocational Education

ABSTRACT

Technology is now and has been the single most important factor in man's transition. Those in education are faced with deciding whether technology shall serve man or man will be forced to be a cog in the machine. In determining the function of education, the decision will be a value judgement involving one of these two choices: (1) Continuing to plan educational programs to meet short term occupational and economic goals, or (2) Changing the curriculum and focusing on long term goals based on a vision of man and his purpose. In the field of education, specifically industrial arts, great store is placed on working relationships with industry and suppliers. The focus of attention in industrial arts has not been on man as an individual but on man as part of the industrial process, together with the crafts and materials essential to the economic and technical process. There are those in the field of education, including industrial arts, who see an urgent need to reexamine the present posture and move toward a greater concern for man. The challenge for education is to aid man in understanding technology, if he is to control it. As a first step, all levels of education must forego the occupational-professional orientation of teaching and reemphasize education in the truest sense of the term. (Author/SB)

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information series **5**

curriculum focus:

Occupations and the World of Work

OF RESEARCH AND DEVELOPMENT
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CURRICULUM FOCUS: occupations and the world of work.

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Information Series 5

Office of Research and Development
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SERIES 69 No. 6-4

PREFACE

West Virginia University's Appalachian Center is dedicated to the objective of bringing knowledge needed for effective decision-making to those who plan and work for the betterment of the State and the Appalachian Region of which this State is a part. The need for knowledge is great – especially the concentration of knowledge in the social and physical sciences. Moreover, the needed information spans a number of methodologies for its generation. Known principles must be collected and applied. In other instances, use must be made of empirical investigations.

The most important function of the Appalachian Center's Office of Research and Development is to produce the type of knowledge that is vital for rational social and economic decisions with respect to both its value to leadership audiences in the State and the Region, and the Center's staff of programmers and field educators located on the University's Campus and throughout West Virginia's Counties. The Office of Research and Development supports a variety of research conducted both by its own staff and other components of West Virginia University.

This paper deals with the purpose of education. This is an extremely important question for West Virginians, as it is for citizens of other states, since increasingly large expenditures and investments are being made in efforts to prepare young people for an increasingly complex and demanding world. Depending upon how the question is answered, resources are allocated between and among educational programs embodying various, sometimes conflicting, philosophies. Since it cannot be assumed that all types of educational programs produce equally valuable results, it is imperative that scarce resources be allocated to the most productive programs. This will result only from the efforts of informed people, people who are aware of the values of available alternatives. This paper is an effort to contribute to that goal.

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January 1969

Curriculum Focus—Occupations and the World of Work

by
Paul W. DeVore

Introduction

Over the past several years there has been an increased emphasis in educational planning upon the world of work and occupations. Those proposing the training of individuals for employment cite statistics on unemployment and the need for job training for young people. Their concern is focused on the economic side of man and the economic structure of society. The criteria of success are determined in terms of dollars of Gross National Product and the percentage of unemployed. It is believed that many social ills can be alleviated if the educational system revises its programs to place more emphasis on preparing the majority of youth for employment immediately upon leaving high school. What is required, they say, is information about the jobs available, the number of individuals needed for the jobs and a planned program of matching individuals with available jobs.

This is an easy answer to a complex task; and it may be questioned whether the answer is appropriate if the question is raised in *human* rather than economic terms. If the question is raised from a human point of view with an historical perspective, then the stability upon which the above premise rests is open to question. What is needed is the recognition of the difference between education and training and the need for individuals who understand their technological society and can adapt to continuous change.

Certainly our society faces grave problems due to change, and no society can return to the past, nor would it desire to do so if it were possible. The factor of change is a key element in the design of educational programs. All societies have faced change and recognized the dynamics of man and his civilization. Heraclitus stated it eloquently centuries ago:

> Upon those that step into the same rivers different and different waters flow . . . it scatters and . . . gathers . . . it comes together and flows away . . . approaches and departs.
> All things are in process and nothing stays still. You could not step twice into the same river.

Today we are on the upper reaches of a constantly accelerating curve of growth with new possibilities for man brought about largely by science and technology. A time analogy provides a perspective of the exponential growth of technology.

The Impact of Technology

> Man first appeared on earth between 250,000 and 1,000,000 years ago. If we let 250,000 equal 60 minutes, some idea of the technical progress of man can be observed.
>
> 55 minutes was spent in the paleolithic or old stone age culture. Five minutes ago man embarked upon the neolithic culture, the cultivation of plants, the domestication of animals, the making of pottery, weaving, and the use of the bow and arrow; 3 and 1/2 minutes ago he began the working of copper; 2 1/2 minutes ago he began to mold bronze; 2 minutes ago he learned to smelt iron; 1/4 minute ago he learned printing; 5 seconds ago the Industrial Revolution began; 3 1/2 seconds ago he learned to apply electricity; and the time he has had the automobile is less than the intervals between the ticks of a watch—less than one second. (9, p. 10)

All of society is in the state of transition. It is this constant state of transition which poses the major problem for education and particularly the field of industrial arts. The question is whether to base programs on *what is* and thereby select the short term solution, largely devoted to training for occupations, or to project to the future and *what is to be,* thereby reaffirming our faith in general education. At present, the position is one of confusion with the question often raised: "If you don't know what the future will be, why be concerned?"

The reason for projection and analysis of the future is stated by Hilton:

> If we could more clearly foresee the kind of society that is evolving so rapidly, then this era of transition would be more fruitful than a helpless drifting into the unknown. *For only by trying to see the possibilities and defining the available choices, do we have a chance to choose the best rather than drift into the worst future.** (6, p. 144)

This may be why an occupational focus has been selected for present day curriculum efforts. The occupational focus deals with *what is* rather than the more difficult question of *what is to be.* By raising the question of "What is to be?" the future can be projected. This

*Italics added

requires, however, a more adequate knowledge of the phenomenon enhancing change, technology.

Technology is now and has been the single most important factor in man's transition. From the time man discovered tools and the fact that one tool could be used to make another tool, to the discovery of agriculture, the industrial revolution and the present scientific-technological society, the future was always uncertain. Recent revolutions in man's latest stage such as (1) the chemical revolution, (2) the standards and the specifications revolution, (3) the electronics and automation revolution (including cybernetics) and (4) the energy revolution, have expanded man's technological power. (1, p. 6) In the process, however, man has more and more become a slave to the technology he has created and is now faced with other than simple operational questions. The equation now must admit another factor, the human factor; for technology has become a force in our society which seems to establish its own direction. Rather than serving man, technology uses man for its own efficient ends. (3)

Those in education are thus faced with a decision. Shall technology serve man or will man be forced to be a cog in the machine? If the assumption that the function of education is to prepare men and women for the world of work is accepted as true, this indicates the latter choice. The opportunity to reconsider this choice is still available. It is a value judgement involving two choices.

1. Continue to plan educational programs to meet short term occupational and economic goals or
2. Change the curriculum and focus on long term goals based on a vision of man and his purpose.

The Function of Education

To a large extent, the development of technology and its operational from industry, has played a decided role in the development of education. Drucker (8, p. 27) notes that by 1900 technology had advanced so far that literacy had become a social need and that by 1965 those without a substantial degree of higher education were actually becoming "unemployable." He substantiates that education had by this time "become the central economic resource of technological society." Education had become a tool and its products commodities for the market place.

Educators, among others in society, are seriously questioning this arrangement. Danilo Dolci, an Italian writer, expresses deep concern about man and his self justification of a system where:

> 'the value of work performed is judged by the price paid for it, and the recipient's moral opinion of himself is based on what his stock is quoted at." (2, p. 11)

An educational system or a social system concerned more with professionalism, economics, and the world of work than with man as an individual leads one to question the underlying morality of the system. Dolci, in his analysis of the client system, states:

> Is there also at the bottom of all this a certain costly moral naivete? . . . . . Thus in various parts of the world first-class minds are being wantonly misused to produce and cleverly advertise mediocre or useless or harmful products; scientists by the thousands emigrate to countries which can offer them better research facilities, without even stopping to think of what use those countries will make of the results of their research. (2, p. 11)

In the field of education, specifically industrial arts, great store is placed on working relationships with industry and suppliers. Advisory councils are formed to find out what kind of graduate industry desires, teachers are solicited to write textbooks which will sell, and industries are solicited for small gifts to aid in the development of the system. Through this relationship the teacher abdicates his responsibility to present all sides of a question. He is not neutral but a part of the system. If his objective is the "study of industry" as is so often stated as an objective of industrial arts education, he can only present his subject in a favorable light as a tool of the system. He is forced into the position of *training* individuals rather than *educating* them. The question "why?" is never raised.

Vocational educational proponents, as distinct from proponents of industrial arts and general education, have long been supported by industry and business. Berenice Fisher's (4, p. 12-13) analysis provides, through a unique classification system, phrases which leave no doubt about the purpose of man's education by proponents of occupational training. These phrases provide insight into the character of thinking involved in the development of vocational education. The positions taken by vocational education proponents have been (1) the *philanthropic ideal* or the ideal of the *honest workman*, (2) the *success ideal* or the engineering ideal, and (3) the ideal of the skilled worker or the *trade training ideal*.

Unfortunately, the field of industrial arts education has borrowed from these models while philosophically stating a general education position. Attention in the field of industrial arts has been focused pri-

marily on crafts or trades and occupations rather than on the central issues determining them and related to technology and society. In recent years, while still maintaining a general education posture, greater emphasis has been directed toward salable or marketable skills, thereby subverting further the true meaning of a general or liberal education foundation.

This posture undoubtedly has retarded the development of industrial arts as the one field of study in the public schools dealing explicitly with technology which could serve a true educational function. The focus of attention, however, has not been on man as an individual but on man as a part of the industrial process, together with the crafts and materials essential to the economic and technical processes.

By accepting the world of work and occupations as a primary but unstated goal, the field of industrial arts, by default, has accepted the belief of society described by King and Brownell.

> ". . . . some students are not fit either by capability or seemliness for liberal education and that, with universal schooling, occupational training is their only alternative." (7, p. 5.)

King and Brownell point out also that occupational programs viewed in this fashion "draw most heavily on students from ethnic and racial minorities and from poor families." (7, p. 5)

Equality of educational opportunity is thus denied, together with an individual's right to transcend his social background. The society, particularly a democratic society, also loses. Those educated primarily for the world of work cannot be expected to become participating citizens in the fullest sense of the term.

There are those in the field of education, including industrial arts, who see an urgent need to reexamine the present posture and move toward a greater concern for man. They see a need for a greater relation among the disciplines and an independence of education from concern for the social-industrial complex and more concern for the individual and the future of society.

In the existentialist sense of the term, it is a quest for meaning in a highly complex technological society; a society which is more and more being directed by the ambivalent phenomena of technology itself. Jacques Ellul points out in his penetrating analysis, *The Technological Society*, that man is no longer in control of his destiny; technology is. (3)

The challenge for education is to aid man in understanding technology, if he is to control it. As a first step, all levels of education must

forego the occupational-professional orientation to teaching and re-emphasize education in the truest sense of the term.

The Nature of Man

Man is not judged in our society as an individual; he is judged and assigned worth by the current prestige of his occupation. The educational system unquestioningly accepts this value judgment and perpetuates it in the educational program. The system is severely criticized when it fails in a given time period to turn out enough electronic technicians, plumbers, or engineers of a given type. Education, in our time, is not concerned with man as man but with his place in the production-consumption cycle.

The field of education fails to assume a leadership position when it focuses attention on how to adapt man to the system and *What is* rather than on man and *what is to be.* It is a failure to realize one of the primary elements of technological development cited by Hilton:

> ". . . . . Since the very beginning, technology has had only one constructive purpose: *the disemployment of human labor.**" (6, p. 145)

Those in the field of education known as industrial arts have been negligent. Their attention has been directed to the material side of technology with no attention to the phenomena of technology itself from which insight could be derived to provide leadership to education. The *creative perspective* which is Dennison's concern is lacking.

> But in the long run of history, as well as in the lives of sincere individuals, the kind of satisfaction arising from success and personal skill in the marketplace is the fruit of the *psychologically limited* on the one hand, or the downright fraudulent on the other, but certainly never of the creative perspective. The latter build civilizations; the former are the stuff of cultural atrophy. (6, p. 285)

Without exception, those in education state we live in a free society with individual choices, while at the same time designing educational experiences to "fit" an individual into some pre-determined employment category. The current emphasis is on adjusting man to the machine or system by defining educational goals in occupational and behavioral terms. The focus is on the adjustment of man to the technology rather than adapting technology to the nature of man.

*Italics added

Present efforts in education are directed to detailing occupational programs based on a stage of technology (the mechanical) that is rapidly being outdated. It is being outdated by a new phenomenon appearing on the scene—cybernation. Cybernation as defined by Hilton is:

> " . . . . . the production process carried out by a complex machine system that is monitored and controlled by a computing machine." (6)

This new phenomenon is different from the so-called industrial revolution of the past which replaced muscle-power with machines. The era of cybernation focuses on certain intellectual activities of the human mind. As Arendt points out: "The industrial revolution changed the nature of man's work but not his life cycle; a cycle consisting of living and laboring; exhaustion and recovery." (6, p. 215)

With the coming of cybernation man will be deprived of this life cycle and must search for meaning in another kind of existence. Not only will his muscles not be needed to produce but neither will his mind be required. Employment as we know it, closely associated with production, will cease to exist for great masses of people. Occupations and the world of work as we know them will change drastically. In fact, only a few will be required to maintain the production system, introducing for many the choice of leisure or its antithesis, idleness.

This exposes the fallacy of education's great concern for "fitting" individuals into niches in society while ignoring man as a total human being and a society in a constant state of change. The society and its economy have changed, but education, as always, is attempting to adjust to a stage that is already ceasing to exist. The problem is clearly analyzed by Dennison.

> In the main, education has not sought the liberal development of the individual for *total living*, but rather his *training* in specialized areas for economic survival, that may have been necessary in the economy of scarcity undergirding our industrial complex. (6, p. 285)

Whether education, as an institution in our society, can solve the problems accompanying the new technological phenomona is open to question. Certainly attention must be directed away from the concept of man's function as a producer toward that of man as a total human being.

Occupational or job training with its preoccupation with the world of work and "what is" is an easy answer. And this is perhaps

why industrial arts constantly foregoes its heritage of general education with its emphasis on common learnings which permit man to interchange value judgements and opinions, understanding his own and other cultures and the interrelationship between all disciplines.

Had the general education concept been pursued with diligence and fine scholarship by those in the field of industrial arts, it is possible this field of education, at least, would have been ready to meet the challenge of today, the human equation.

> . . . . . We are becoming aware that the major questions regarding technology are not technical but human questions, and are coming to understand that knowledge of the history and evolution of technology is essential to an understanding of human history. (8, p. 31)

Not only does Drucker believe the major questions are in the human realm but he believes "we must understand the history, development, and the dynamics of technology in order to master our contemporary technological civilization, and that unless we do so, we will have to submit to technology as our master." (8, p. 31)

Assigning priority to the human element in the curriculum, with emphasis on fulfilling man's essential nature as director of his own destiny, is an extremely difficult task. If man is to direct his own destiny, the educational system must be focused on other than occupational goals with their primary emphasis on training and performance behavior. Man prepared for an occupational life is not prepared to engage in the problems of society in any but "unthinking ways" as discussed by Brownell.

> . . . . . such "automatic," "stimulus-response," unthinking responses are deficient in meaning and subtlety. They do not give the individual the flexibility, adaptability and creativity that come from the schooled capacity to make distinctions. Thoughtless involvements do not allow a person to detect unusual patterns, make discriminating responses, discern unspoken premises, relate general ideas to complex particular instances, or strive for greater personal involvement in the several important aspects of life. (7, p. 30)

The Social-Industrial Complex*

If not by default, at least by lack of a thorough understanding of our complex technological system, man is permitting his society to

*See Harrington, Michael. "The Social-Industrial Complex." *Harpers* (November, 1967), p. 55-60.

become one huge monolithic structure serving other than human needs. To question the alliance is not politic. But the question must be raised if man is to be master of his own fate.

Is it the proper function of education to engage in occupational training or should this task be assigned to other segments of society? As Brownell notes, occupational training has been considered a demand on schools only in recent times. Often those in education believe they must support this function in order to obtain proper funding for other essential educational functions. There is a growing recognition, however, that the schools can never provide adequate training for occupations and industry in today's society. More and more business and industry are accepting responsibility for this function as a part of operating expenses. Questions such as those raised by Dennison are becoming more prevalent.

> In another day, there *may* have been economically justifiable reasons for limiting teaching to the aim of making the individual marketable; in other words, to train him to be useful in an overwhelmingly industrialized society. However salutary for the industrial heart of the nation this philosophy may have been—and it has obviously been enormous—technically trained but otherwise uneducated masses of our people are its end result. This has become politically, socially and psychologically problematic, if not disastrous. (6, p. 285)

Those who are narrowly trained in soon to be obsolescent job categories are not educated broadly enough to engage in the solution of the problem of unemployment which directly affects them. The question of whether the problem is one of structure (matching people to jobs) or aggregative (insufficient demand) is vague and incomprehensible to these individuals.

Education is a question of goals, a question of life style. If man is to develop his human dimension, he must be educated to evaluate and establish goals for himself and society.

If man does not establish his own goals, he must accept the goals of the industrial system described by Galbraith (5, p. 398). "The expansion of output, the companion increase in consumption, technological advance, and the public images that sustain it." If we accept these goals according to Galbraith all of our lives will be in the service of these goals; all else will be off limits.

> Our wants will be managed in accordance with the needs of the industrial system; the policies of the state will be subject to similar influence; education will be adapted to industrial

need; the discipline required by the industrial system will be the conventional morality of the community. All other goals will be made to seem precious, unimportant or antisocial. (5, p. 398)

The system then becomes self-directing for technological reasons rather than for human reasons and education assumes the function of supplying trained manpower as directed by the system.

Whether the question can be raised and heard today is doubtful. The industrial system has developed great power and many converts who share its materialistic values of life and believe that whatever is good for the system will be good for man. The system has many supporters and clients, as is witnessed each time legislation for the regulation of business or industry is proposed in Congress, whether it be for human, aesthetic or social needs. Economics and the protection of the status quo are the factors in the equation—not man.

The Choice:

The choice of goals may be forced upon man by the revolution taking place in technology today. Bellman believes that the days of mass employment generated by mass industry are over and that cybernation will seriously affect both the lower and middle economic classes. (6, p. 79) Thus, this large segment of society will face the question of reevaluating man when work as we know it today no longer exists. So far, society as a whole has not questioned the problem seriously. The numbers affected have not been excessive. Numerical values are relative and they are adjusted and used as a solution by such means as raising the tolerant level of employment to 4% or somewhere over 2½ million individuals.

But numbers are not the basic question. The choice concerns the question, "Who is man?" Is man an element of the machine to be programmed and trained through the process of education in and for the system or in and for himself? If the system is to be honored and propagated at the expense of man, what is the future of man with his programmed marketable skills? Brownell believes that the more occupational training an individual has and the earlier it begins, the less opportunity an individual has to advance in the industrial system even if we accept economic goals as primary. (7, p. 7)

The nature of man and his society is directly related to the goals of his educational system and the value judgements made by man.

> . . . and the public consequences will be in keeping, for if economic goals are the only goals of the society, it is natural

that the industrial system should dominate the state and the state should serve its ends. If other goals are strongly asserted, the industrial system will fall into its place as a detached and autonomous arm of the state, but responsive to the larger purposes of society. (5, p. 399)

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